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$$\frac{a}{b} = a \div b = a \cdot \frac{1}{b}$$

Power of a Quotient $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$

Ex: $\left(\frac{3}{2}\right)^3 = \frac{3^3}{2^3} = \frac{27}{8}$

$$\frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2} = \frac{27}{8}$$

Quotient of Powers: $\frac{a^m}{a^n} = a^{m-n}$

Ex: $\frac{x^7}{x^2} = x^{7-2} = x^5$

$$\frac{\cancel{x} \cancel{x} \cancel{x} \cancel{x} \cancel{x} \cancel{x} \cancel{x}}{\cancel{x} \cancel{x}} = x^5$$

Ex: $\frac{3^9}{3^6} = 3^{9-6} = 3^3 = 27$

$$\frac{3^9}{4^6} = \frac{3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3}{4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4}$$

$$\frac{\cancel{3} \cancel{3} \cancel{3} \cancel{3} \cancel{3} \cancel{3} \cancel{3} \cancel{3} \cancel{3}}{\cancel{3} \cancel{3} \cancel{3} \cancel{3} \cancel{3} \cancel{3}}$$

$$\frac{3^5}{4^5} = \left(\frac{3}{4}\right)^5$$

$$3^1$$

$$x^1$$

Negative Exponent $a^{-m} = \frac{1}{a^m}$ $\frac{5}{1}$

Ex: $x^{-3} = \frac{1}{x^3}$

2^5	2^4	2^3	2^2	2^1	2^0	2^{-1}	2^{-2}
32	16	8	4	2	1	$\frac{1}{2}$	$\frac{1}{4} = \frac{1}{2^2}$

Ex: $\frac{-3x^{-2}y}{z^{-5}} = \frac{-3yz^5}{x^2}$

Zero Exponent $a^0 = 1$

Ex: $(3x)^0 = 1$

$3^0 x^0 = 1 \cdot 1 = 1$

1. $\frac{w^{-2}}{w^6}$

2. $(p^3 q^2)^{-1}$

3. $(3p^{-3} q^2)^{-2}$

4. $\frac{x^{-1} y^2}{x^2 y^{-1}}$

5. $\frac{4r^4 s^5}{24r^4 s^{-5}}$

6. $(a^5 b^4)^2 = a^{14} b^{-1} \cdot ?$